

## C.S. PEIRCE'S COSMOGONIC PHILOSOPHY OF EMERGENT EVOLUTION: DERIVING SOMETHING FROM NOTHING

### FILOSOFÍA COSMOGÓNICA DE LA EVOLUCIÓN EMERGENTE DE C. S. PEIRCE: DERIVANDO ALGO DE LA NADA

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*Resumen:* la filosofía cosmogónica de la Naturaleza que propone Peirce, representa una revisión radical de la idea de emergencia, en sustitución de la metafísica tradicional mecanicista que era dominante en la ciencia de su época, junto con la idea del azar en el mundo como la base o fundamento del orden general de la Naturaleza. El resultado es una nueva y potencialmente revolucionaria consideración de la evolución emergente que tiene en cuenta las condiciones mecánicas y la conformidad general a la ley como condiciones emergentes que surgen a través de procesos evolutivos operando a una escala cosmológica. Fundamentar la cosmogonía evolutiva en la idea de azar en la filosofía de la Naturaleza de Peirce representa un radical e importante punto de partida para gran parte de la tradición emergentista. Más aún, ofrece las bases para una teoría general de la emergencia que podría considerar los fenómenos emergentes como una parte generalmente predecible y explicable del orden general de la naturaleza como tal.

*Palabras clave:* azar, cosmogonía, emergencia, evolución, ley, mecanismo, naturaleza, Peirce.

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*Abstract:* Peirce's cosmogonic philosophy of Nature represents a radical rethinking of the idea of emergence, replacing the traditional metaphysics of mechanism that was dominant within the science of the day with the idea of a chance world as the base or grounding condition of the general order of Nature. The result is a novel and potentially revolutionary account of emergent evolution that sees both the conditions of mechanism and generalized conformity to law as emergent conditions that come into being through evolutionary processes operating at a cosmological scale. By grounding evolutionary cosmogony in the idea of chance Peirce's philosophy of Nature represents a radical and important departure from much of the emergentist tradition. Most importantly, it offers the groundwork for a general theory of emergence that would see emergent phenomena as generally predictable and explicable part of the general order of Nature as such.

*Keywords:* chance, cosmogony, emergence, evolution, law, mechanism, Nature, Peirce.

## §1. INTRODUCTION

One of the earliest proponents of the idea of emergent evolution in its strong ontological sense is C.S. Peirce. Peirce was among the first to extend the general principles of evolution to an ontological level, taking both the spontaneity of chance and a general principle of growth to be real, irreducible ingredients of the general order of Nature. So radical and extensive was Peirce's emergentist philosophy that he proposed that the laws of Nature themselves should be viewed, not as eternally given conditions, but as emergent conditions that have come into being through evolutionary processes on a cosmological scale. Driven by the call to explain, Peirce's "Cosmogonic Philosophy" (Peirce, 1891: 297) pushed the principles of evolutionary explanation to their logical and ontological limits, making him among the first of the early emergentist philosophers to develop what amounts to a general *theory of emergence*, an attempt to explain or provide a reasonable account of emergence in general as an explicable fact of Nature.

Emergent evolution in its broadest, most general sense is the idea that evolutionary processes can give rise to new or novel conditions that are not reducible to the conditions from which they arise. Recent accounts of emergent evolution



are often seen as having their roots in the so-called 'British emergentists' of the early part of the 20th century, most notably: Samuel Alexander, Lloyd Morgan, and C.D. Broad. So strong is the association between contemporary theories of emergence and the British 'school' that Jaegwon Kim has proposed that contemporary accounts of emergence should be framed in a way that is continuous with the "conceptual and doctrinal convergence" that is characteristic of the early British "movement" (Kim, 2006: 548). According to Kim, a central feature of the British emergentists, at least as expressed in the work of Broad, is the idea that emergent conditions are not reducible to their base, which is often taken to be mechanistic in character (1996: 551-552). Broad and others generally assumed that the order of Nature was mechanistic at its base and since some phenomena did not seem to be readily amenable to mechanistic explanations, they were re-characterized as emergent in some sense.

It is here that Peirce's account of emergent evolution differs so radically from most within the tradition, for Peirce rejects the mechanistic metaphysics against which emergentism develops and proposes a radically new ontological system whose base condition is not mechanism per se but *tychasm* or chance. Focusing on the work produced during Peirce's so-called 'Monist' period, we will see that Peirce's attempt to explain the origins of the laws of nature is in fact the groundwork for what amounts to *a theory of emergent evolution*<sup>1</sup>. Much of the discussion will revolve around the cosmogonic hypothesis outlined in Peirce's unpublished work, "A Guess at the Riddle," for it is here that the kernel of his cosmogonic philosophy is most clearly articulated and laid out. Once Peirce's cosmogonic hypothesis has been made clear I will end by outlining my own speculative metaphysical account of how the Categories themselves might have come about, with Thirdness and Secondness standing in an emergent relation to Firstness.

## §2. PEIRCE'S RIDDLE

One of the earliest and perhaps most systematic outlines of Peirce's cosmogonic philosophy can be seen in his unpublished but seminal work, "A Guess at

<sup>1</sup> For more on the evolutionary character of Peirce's philosophy but with a different emphasis see Hausman (1997).



the Riddle.” The principal aim of Peirce’s ‘Guess’ is to illustrate the applicability and “continual exemplification” of the Categories –Firstness, Secondness, and Thirdness– across a wide range of subject matters from psychology and biology, to physics, metaphysics, and theology (Peirce, 1887-1888: 245-246; Peirce, 1887-1888: 252-253). While Peirce’s various illustrations of the Categories are revealing, it is in their application in physics that the boldness and ontological reach of his proposal is most fully displayed. It is there that Peirce provides what is perhaps his most comprehensive sketch of an evolutionary cosmology or, better, *cosmogony* that purports to account for the origin and development of the laws of Nature. For his radical hypothesis to be viable, Peirce must show that the emergence of the laws of nature can be accounted for solely by appeal to the Categories, as sufficient conditions for the emergence of such laws.

Before outlining the principles underlying the ‘Guess’ we should first make clear the nature of Peirce’s *riddle*. We find clues as to the nature of Peirce’s riddle in his earlier work of 1878, “The Order of Nature.” Peirce begins by making the following bold and seemingly arbitrary claim: “If a remarkable and universal orderliness be found in the universe, there must be some cause for this regularity, and science has to consider what hypotheses might account for the phenomenon” (Peirce, 1878: 170). He follows a little later with the following:

If we could find out any general characteristics of the universe, any mannerism in the ways of Nature, any law everywhere applicable and universally valid, such a discovery would be of such singular assistance to us in all our future reasoning that it would deserve a place almost at the head of the principles of logic. On the other hand, if it can be shown that there is nothing of the sort to find out, but that every discoverable regularity is of limited range, this again will be of logical importance. What sort of conception we ought to have of the universe, and how to think of the ensemble of things, is a fundamental problem in the theory of reasoning (Peirce, 1878: 171).

There are two questions that stand out as of primary concern here: 1) How is the universe ordered? 2) What implications might this have for logic and the general theory of reasoning? Later in the same article Peirce repeats this point when he notes that “Some important questions of logic depend upon whether we are to consider the material universe as of limited extent and finite age, or quite boundless in space and time” (Peirce, 1878: 182). If the universe is bound-



less than any attempt to discern a design embracing the “whole is futile, and involves a false way of looking at the subject.” But, continues Peirce, “if there was a time before which absolutely no matter existed, if there are certain absolute bounds to the region of things outside of which there is a mere void, then we naturally seek an explanation of it” (Peirce, 1878: 182).

Closely related to this line of inquiry is what Peirce sometimes refers to as the call to explain, a call that seems part and parcel of our nature as rational, logical animals and that is made more puzzling by the fact that our minds appear “strongly adapted to the comprehension of the world” (Peirce, 1878: 181). From this we can now add a third fundamental question: 3) Why does mind appear so readily attuned to the order of Nature?<sup>2</sup> Peirce’s riddle is bound up with these three questions and he spends a great deal of his work trying to address them in one manner or another. The call for explanation is central to the riddle for it is a call (or calling) that issues both externally and internally as two sides of the same coin, as it were: externally from our experience of phenomena, and internally from our character as inquisitive, logical animals who desire by nature to know (Rose, 2012).

A central feature of Peirce’s ‘Guess’ at the riddle is his claim that there is something about the way the universe is ordered that calls for an explanation. To get at the heart of Peirce’s account we must first see what it is about the universe that calls for an explanation and why.

### §3. WHY THE LAWFULNESS OF NATURE CALLS FOR AN EXPLANATION

In his 1884 lecture called “Design and Chance” Peirce notes that scientific justification is always historically situated, and what we may be justified in accepting or dismissing in one historical context may be open to question or

<sup>2</sup> Peirce entertains the idea that this adaptation might be the result of natural selection, but then concludes that while “Such an hypothesis naturally suggests itself, but it must be admitted that it does not seem sufficient to account for the extraordinary accuracy with which these conceptions apply to the phenomena of Nature, and it is probable that there is some secret here which remains to be discovered.” (Peirce, 1878: 181-182)



merit inquiry in another depending on the evidence and information available. Applied to the laws of Nature Peirce then claims

that at one stage of inquiry it is quite right to insist strongly on the exactitude of established laws, to question which would only lead to confusion, while at a later stage it is proper to question the exactitude of those same laws when we are in possession of a guiding idea which shows us in what manner they may possibly be corrected (Peirce, 1883-1884: 216).

For Peirce the newly enervated principles of evolutionary explanation combined with the development of non-Euclidean geometries and other mathematical discoveries at the time justified calling into question the exactitude of established laws of Nature. Since, claimed Peirce, there are no good or sufficient reasons to suppose that phenomena conform exactly to any specific law (but may conform instead in a more general or stochastic manner), then we need to provide an account of how phenomena may conform to law in a general rather than an exact manner.

Satisfied that there is indeed sufficient justification for questioning the exactitude of the laws of Nature Peirce then goes on to claim that the very existence of lawfulness or orderliness in Nature now calls for an explanation: "Among the things that demand explanation, then, are the laws of physics; and not this law or that law only but every single law." Further down in the same discussion he adds: "But I maintain that the postulate that things shall be explicable extends itself to laws as well as to states of things. We want a theory of the evolution of physical law" (Peirce, 1883-84: 218). Peirce repeats the same call later in his 'Guess,' stating that "Among other regular facts that have to be explained is Law or regularity itself" (Peirce, 1887-88: 276). While it is clear that Peirce thinks that the existence of lawfulness or regularity is something that we are obligated to try to explain, it is still not clear what exactly it is about such phenomena that calls for an explanation in the first place. Peirce himself says that it is the *general* character of such phenomena that calls for explanation, but never explicitly states why this is so. To answer this we must look at what Peirce says about the nature of inquiry and the call for explanation.

For Peirce, the call to explain arises when we experience something unanticipated, unexpected, or improbable (given some set of background conditions) (Peirce, 1901: 89-95). Such unanticipated or surprising experiences arouse our



attention and prompt inquiry (Peirce, 1868: 46-47). Peirce had already noted that any “remarkable and universal orderliness” encountered in the universe would call for an explanation, and he reiterates the same point with greater emphasis in “A Guess at the Riddle,” noting again that “every fact of a general or orderly nature calls for an explanation (Peirce, 1887-1888: 276-277). Since any and all facts of a general or orderly nature call for explanation, there must be something about such phenomena that is unexpected, surprising or “remarkable” in some sense. Peirce says as much, noting that the kind of uniformity of conformity with law associated with the laws of nature “is seen to be really a highly exceptional phenomenon” that marks it as “more important” than other, more expected phenomena (Peirce, 1887-1888: 276). What is it about facts of a general or orderly nature that would make them appear so remarkable and surprising? It is here that we must turn to Peirce’s earlier account of what he calls a “chance-world,” for the call to explain the orderliness of Nature only makes sense when set against such a world as the base condition of the order of Nature in general.

#### §4. THE SYMMETRICAL ORDER OF LOGIC AND THE SYSTEMATIC CHARACTER OF A CHANCE-WORLD

To understand the special character of conformity to law, as an unexpected general fact of Nature that calls for an explanation, we need to make clear the ‘normal’ or default condition that serve as the base or ‘expected’ state of affairs. The clue to this lies in Peirce’s account of chance and what he calls a “chance world.” In “The Order of Nature” Peirce says that a chance world “would be one in which there were no laws, the characters of different things being entirely independent; so that, should a sample of any kind of objects ever show a prevalent character, it could only be by accident, and no general proposition could ever be established” (Peirce, 1878: 172). A ‘chance world’ in Peirce’s sense would be completely devoid of any regulating or ordering principle with any possible occurrence within that world being as equally likely as any other possible occurrence. Since every possibility has an equal chance of occurring in such a world then nothing, says Peirce, “could be imagined more systematic” than a chance world (Peirce, 1878: 173). In such a world, says Peirce, nothing would attract our attention or surprise us precisely because everything that happened would



happen by chance and so nothing would be unexpected or surprising (Peirce, 1878: 175-176). Thus if we imagine a roll of the dice in a purely chance world we would not be surprised if we rolled a six, followed by a three, followed by a two, and this followed by a six, and so on indefinitely. What would surprise us, however, is if one number or set of numbers started to occur more regularly than some others. Such regularity would lead us to suspect that there was something else going on in the world, something that was causing the occurrences to deviate from what we would normally expect on a chance roll. If we take the idea of a chance world to be the default condition of things, then any occurrences of a regular or uniform sort would quickly catch the attention of a curious mind.

Why take chance as the basic, default condition? Two reasons: 1) First, as Peirce notes in many places, chance is a characteristic or feature of the Category of *Firstness* and, as first, should be taken as a basic and primary feature of world. Thus, if we were to try and reduce the world to its most basic element the most plausible alternative would be a world of purely chance occurrences. 2) Second and perhaps most surprisingly, Peirce sees a strong affinity between the systematic character of a chance world and the regular symmetrical order of logic. One of the more surprising and yet potentially important lessons to be learned from Peirce's analysis here is that the order of logic, when not guided by any special leading principle learned from experience, tends to conform exactly and precisely to the kind of order found within a chance-world. Put crudely, in a chance world the frequency and range of actual occurrences seems to conform exactly to what unfettered logic would predict. As Peirce himself says, in a chance world "everything that can happen by chance, sometime or other will happen by chance" (Peirce, 1883-1884: 219-220). This amounts to saying that in a chance world everything that is logically possible will also be actually possible. As Peirce himself puts it, "in a world where there were no uniformities, no logically possible combination of characters would be excluded, but every combination would exist in some object" (Peirce, 1878: 173). Thus we should take chance as basic because the systematic order of chance seems to conform exactly to the symmetrical order of logic.

The next key question, of course, is whether or not the existing or current order of Nature is a chance world, and Peirce quickly affirms that it is not. When we examine the world we find various levels and kinds of regularities and uniformities that we would not expect to find in a chance world. Put simply, we find some possibilities to be more or less likely than others, a situation that Peirce





had earlier characterized as the “dissymmetry of Nature.” A central feature of the dissymmetry of Nature is that some logical possibilities seem to be excluded from the range of actual occurrences within the general order of Nature. Thus, for example, of the range of logical possibilities associated with the claim ‘All men are mortal,’ in the order of Nature one of those logically symmetrical possibilities seems to be excluded from the range of naturally possible occurrences, namely, the logically possible state of “immortal men.”

Let us inquire into this: –to say that All men are mortal is the same as to say that of the four classes into which we might imagine all things symmetrically divided in respect to humanity and mortality; namely, mortal men, immortal men, mortals not men, and immortals not men—I say that of these four classes, to say All men are mortal is to say that one, namely immortal men, does not exist. Such a proposition therefore establishes a dissymmetry, in nature (Peirce, 1866: 419).

This ‘natural fact’ or ‘truth of Nature’ suggests that the dissymmetrical order of Nature is not a chance world, but is a special subset of the more symmetrical order of pure logic (which for our purposes can be taken to be loosely equivalent to a chance world), a fact that points to some principle or condition that is affecting the range of logically possible occurrences within the order of Nature (Rose, 2011). Put differently, the logically dissymmetrical character of ‘natural truths’ or ‘natural facts’ suggests that there is a degree or orderliness or uniformity within the order of Nature that marks it as importantly different from what we would expect in a purely logical or chance world. Why? The answer can be found in the nature of uniformity or regularity as such, for “uniformity consists in the non-occurrence in Nature of a certain combination of character” (Peirce, 1878: 172). Put simply, the existence of regularity or uniformity entails the exclusion or diminishment of certain possibilities in favour of others. Since this goes against the normal symmetry of logic and the systematic character of a chance world, then such exclusionary effects must be the result of a special agency or special power of determination that is added to the conditions normally associated with a chance world<sup>3</sup>.

<sup>3</sup> In normal physicalist parlance this ‘natural bias’ is accounted for appealing to some set of laws as additional determinations of natural occurrences, but since this is the very condition that Peirce



Given the perfect logical symmetry of a chance world and the base ontological condition of the Natural world, then the existence of such regularities or uniformities would catch our attention, for they would point to something that is logically special and unexpected as the source of those surprising facts. The level of “conformity with law” expressed by the laws of nature thereby call for an explanation precisely because they diverge so strongly from what one would expect in a purely chance-like, logically symmetrical world. Such law-like phenomena stand out as “highly exceptional phenomenon” whose very exceptionality calls for explanation. What needs to be explained, of course, is just how such law-like phenomena could have emerged or come to be from the base condition associated with a chance world, and this is what Peirce’s “Guess at the Riddle” attempts to address.

#### §5. PEIRCE’S GUESS AT THE RIDDLE

Peirce’s ‘Guess’ is part of a larger attempt to address the question of how the dissymmetry of Nature could have come about. To accomplish this Peirce appeals to his theory of the Categories. Central to Peirce’s account is the radical claim that both the conditions of mechanism (which fall under the dyadic Category of Secondness) *and* law-like generality (which fall under the triadic Category of Thirdness) are actually *emergent* conditions that arise from the more basic or base condition of chance (or Firstness). As we shall see, while mechanism emerges or follows from the more base condition of chance, it is nevertheless not reducible to the chance conditions from which it emerges but has a reality and an efficacy of its own. The same is true of the generalizing tendency which gives rise to the growth of regularity or lawfulness within Nature, for while it emerges from chance (and mechanism) as its base condition, it too is not reducible to its base but has a reality and efficacy of its own.

We can best understand Peirce’s ‘Guess’ by beginning with some qualifying descriptions and explanations of key moves in Peirce’s account. It is noteworthy that Peirce presents his cosmogony as the application of his Categories to physics

is calling into question and trying to explain then appealing to law in this sense would be to beg the question.



rather than metaphysics. Two important implications follow: 1) Peirce's 'Guess' is not an account of the origins of being as such, but is instead a hypothesis regarding the origin of general regularity within and logical dissymmetry of *Nature* (as a special subset of being in some more extensive and inclusive sense), and 2) Peirce's 'Guess' is not an explanation of the origins or grounds of Thirdness as such (as a fundamental Category or element of being), but of a special physicalist instance or expression of *Thirdness*, namely, the habit-taking tendency. Regarding the first point, Peirce himself explicitly notes that his 'Guess' is not aimed at explaining all aspects of phenomena, e.g. the *indeterminacy* of "pure firstness" or the *haecceity* of "pure secondness," but is concerned only with the "highly exceptional phenomenon" of *uniformity* or "conformity with law" (Peirce, 1887-1888: 276). In fact, Peirce goes to great pains to make clear that he is not attempting to explain the origins of "pure firstness" and "pure secondness," arguing that such non-general aspects or elements of phenomena are "facts not calling for and not capable of explanation" (Peirce, 1887-1888: 275). Regarding the second point, I want to suggest that what Peirce calls "habit taking" is but one of a number of possible *thirds* that are or could have been operant across multiple possible worlds or "systems." We see this illustrated in "Design and Chance" where Peirce attempts to explain the logic underlying evolutionary selection by asking his reader to envisage "a large number of systems in some of which there is a decided tendency toward doing again what has once been done, in others a tendency against doing what has once been done, in others elements having one tendency and elements having the other." Peirce then goes on to see how each of these possible tendencies would play out in a world of chance.

To fix our ideas suppose players playing with dice, some of their dice are worn down in such a way that the act of losing tends to make them lose again, others in such a way that the act of losing tends to make them win. The latter will win or lose much more slowly, yet after sufficient length of time they will eventually be ruined or destroyed. Those whose dice are so worn as to reproduce the same effects will be divided into two parts, one of which will quickly be destroyed, the other made stronger and stronger. For every kind of organism, system, form, or compound, there is an absolute limit to a weakening process. It ends in destruction; there is no limit to strength. The result is that chance in its action tends to destroy the weak & increase the average strength of the objects remaining. Sys-



tems and compounds which have bad habits follow the same course; only those that have good habits tend to survive (Peirce, 1883-1884: 223).

The lesson is simple, a habit taking tendency is but one of a multiplicity of possible tendencies, and in a world of chance events, a habit taking tendency will tend to 'survive' or endure because it will produce an accelerated growth in the average strength of those with this tendency, allowing the habit taking tendency to inevitably supersede any and all elements or systems lacking in a that tendency in any way (e.g. systems that have a habit breaking tendency or those that have some combination or mixture of the habit taking and habit breaking tendencies, and so on). Since the habit taking tendency is but one of a multitude of such possible tendencies then it is clear that the habit taking tendency is not *Thirdness* as such, but merely a particular (and cosmologically dominant) *third*. Of the various habit-relating tendencies, the habit-taking tendency would tend to win out, as it were, in a process of cosmological selection, a point that will become relevant again in answering the question of how that tendency is established in Peirce's 'Guess'.

Returning once again to the 'Guess' Peirce notes that the primary purpose of his proposed cosmogony is to explain "how the laws of nature came about" (Peirce, 1887-1888: 277). To explain how such "highly exceptional phenomena" might have come about Peirce simply proposes a physicalist interpretation of his Categories with three basic elements put into play: "first, chance; second, law; and third, habit taking" (Peirce, 1887-1888: 277). Chance is the physicalist expression of Firstness, law the physicalist expression of Secondness, and habit taking the physicalist expression of Thirdness. We will proceed by summarizing the key characteristics of each.

Peirce associates many characteristics with the physicalist term *chance*, including everything from *indeterminacy*, *spontaneity*, and *freedom*, to the kinds of *accidental variations* associated with aesthetic amusements such as *sporting* and 'games of chance'. It applies generally to occurrences or events that seem to be devoid of any *reason* or regulating ground, but which appear to happen *in-themselves* and *of-themselves* in a purely *non-relational* sense (Peirce, 1883-1884: 222; Peirce, 1886: 243; Peirce, 1887-1888: 289). While occurrences in a chance world would be predictable in a general, systematic sense (Peirce, 1878: 172-176; Peirce, 1883-1884: 222; Peirce, 1892: 310), occurrences within such



a world would nevertheless be completely devoid of any regulating or governing agency (which would work to exclude certain possibilities from occurring) (Peirce, 1883-1884: 219). As a natural, physicalist notion, chance is taken as basic or base simply because it is *first*, having no relation to anything before, behind, or beyond itself in any physicalist sense.

Where chance is non-relational, *law* as outlined in the 'Guess' is inherently relational in a fixed, mechanical, *absolute* sense. In this absolute sense law represents a state of hard determinism or where the dyadic relata are what they are by way of the fixed, unalterable bond that each has to the other. Law in this fixed, mechanical sense is a relation of *materialistic force* "which produces sequences or Seconds" and which is so completely determinate as to make it impossible for it to be otherwise than it is (Peirce, 1886: 243-244; 1887-88: 277; Peirce, 1891: 292; Peirce, 1892: 300). Law in this *second*, dyadic sense represents a final state of *necessitarian* determination, a world or state where everything would be predictable precisely and exactly. Thus where chance represents a state of *absolute indeterminacy*, law in the sense outlined in the 'Guess' is complete and generalized *absolute determinacy*, a condition that stands maximally opposed to chance as its radical difference or other. As a physicalist notion law in this maximally determining sense is second precisely because it is what it is by way of its contrast with chance.

Where chance and law stand as opposing notions in Peirce's 'Guess', the third element of *habit taking* serves the intermediary function of bringing the otherwise radically opposed elements of chance and law together in a continuous, intelligible, reasonable process of *evolutionary growth*. Thus habit taking stands *in-between* chance and law, each of which stand as a *limit* of the habit taking tendency. As an intermediary third, habit taking thereby has a dual orientation, namely, "back toward a point in the infinitely distant past when there was no law but mere indeterminacy" (i.e. a state of *absolute chance*), and "forward to a point in the infinitely distant future when there will be no indeterminacy or chance but a complete reign of law" (i.e. a state of *absolute law*) (Peirce, 1887-1888: 277). The essence of the habit taking element is to bring the otherwise disparate elements of chance and law together in a coherent, reasonable whole (Peirce, 1892a: 347). This role is consistent with Peirce's later claim that "*Thirdness* is that whose being consists in its bringing about a secondness" (Peirce, 1903: 267), for the habit taking tendency in this natural, evolutionary sense serves as the means



of evolving the world towards a generalized, necessitarian state of absolute law (which functions as a limit upon the generalizing effect of the habit taking tendency). For unlike the other kinds of possible habit-relating tendencies or thirds, the habit taking tendency is a “self-generative” tendency because of its power to increase the average strength of its outcomes as a process of *acceleration* or *growth* (Peirce, 1883-1884: 223; Peirce, 1887-1888: 277-278). As such it will naturally be selected for from among the alternative habit relating tendencies as a destined outcome of a process of cosmological selection.

Since the general order of Nature is marked by degrees of uniformity and regularity in the sense outlined above, then we can safely conclude that “the world is not a mere chance medley” (Peirce, 1878: 172). Since a necessitarian world of absolute law would not display the kinds of approximation to law that are characteristic of natural phenomena, then we can also safely conclude that the world is not necessitarian in character (Peirce, 1892: 303-306). According to Peirce, the natural world in which we live is somewhere between these two limits or states, and to best account for it we need to posit a third, generalizing principle or tendency that would account for the evolutionary growth within the order of Nature from an original chance-world and towards an increasing state of generalized conformity to law. It is to this end that Peirce introduces his habit-taking tendency, a tendency which he suggests “has produced all regularities” (Peirce, 1892: 310). So qualified, Peirce’s cosmogony therefore proceeds something like this:

1. The Categories are introduced as conditions for the possibility of any and all phenomena in all their diverse senses (Peirce, 1887-1888: 247-256). As conditions of possibility, the Categories function as something akin to quasi-transcendental (non-dogmatic) conditions in a Kantian sense or, better yet, as conditions for the possibility of phenomena in something akin to Apel’s “transcendental-pragmatic” sense (Apel, 2001: 166-177).
2. Peirce identifies the level of uniformity and conformity with law associated with the laws of nature as “a highly exceptional phenomenon” that calls for explanation; “and since Law in general cannot be explained by any law in particular, the explanation must consist in showing how law is developed out of pure chance, irregularity, and indeterminacy” (Peirce, 1887-1888: 276). Put differently, the existence of a general conformity to law cannot be explained by any particular law, for that would beg the question of where the particular



- law came from, so lawfulness must have its roots in something that is not itself lawful or law-like in character (where the generalized uniformity associated with law involves the exclusion of certain logical or chance possibilities).
3. It is here that Peirce appeals to the Categories introduced earlier in the article, outlining three physicalist expressions of the Categories, namely, *chance*, *law*, and *habit-taking* as the fundamental physicalist constituents or ingredients underlying the general order of Nature. Chance of course is *first* as *absolute beginning*, law in the necessitarian sense is *second* as *absolute end*, and habit-taking is third as *mediating function* (Peirce, 1887-1888: 277).
  4. In the earliest stages of cosmogonic evolution the three elements stand in a chaotic "state of mere indeterminacy, in which nothing existed or really happened," a state of quasi-existence if you will in which the dyadic and triadic elements exist as something akin to mere possibilities. The triadic or habit taking principle in particular can be thought of as merely *idling* as it were in a possibility space awaiting its spontaneous emergence to work upon some other condition that can set it in motion, some 'input' upon which it can begin to work (in much the same sense in which Locke's powers of mind or Kant's Categories of the Understanding might be thought to be sitting idling until set in motion by sensible experience). This condition marks one of the first and most basic 'tests' of Peirce's Categories, for if they are to be truly comprehensive and elementary in the sense proposed, then they must be capable of starting themselves from themselves without appealing to anything outside of themselves in any ad hoc sense as a kind of *deus ex machina*.
  5. It is here that Peirce introduces his famous "flash," an occurrence that seems to appear spontaneously and arbitrarily precisely because it is spontaneous and arbitrary, and is justified in being so "by the principle of firstness" (Peirce, 1887-1888: 278). In keeping with the "principle of firstness" that serves as its transcendental or quasi-transcendental ground, the flash manifests as a spontaneous, chance occurrence that has no cause or determining condition outside of itself. Such a spontaneous occurrence is perfectly consistent with a chance world as the First and hence base or default condition of natural existence.
  6. While the flash manifests "by the principle of firstness," the flash itself is actually an instance of Secondness, for it is second to the state of chaotic indeterminacy or mere possibility from which it arose. Thus the flash actually





serves as the beginning of *difference* or *otherness* in a determinate sense (which thereby comes prior to the unifying function of Thirdness)<sup>4</sup>.

7. Once the first flash is set in motion it can serve as a given input for the habit taking function which also arises spontaneously by chance (for there is nothing to prevent or exclude its occurrence). "Then by the principle of habit there would have been a second flash," then a third, then a growing multiplicity of flashes until we see eventual emergence of a series of such events that becomes increasingly "continuous and uniform in its flow," thereby marking the birth of time (Peirce, 1887-1888: 278).
8. By the principle of firstness and secondness we eventually see the emergence of pairs of simultaneous events, thereby marking the birth of space (Peirce, 1887-1888: 278-279). And so on, and so on...

#### §6. ANOTHER GUESS AT THE RIDDLE

I will finish by proposing what T.L. Short and others claim cannot be done. According to Short, Peirce's cosmology was doomed to fail because "it proposed to derive Thirdness from Secondness or, possibly, from Firstness. If the phaneroscopy is sound, then this is absurd. Laws cannot be reduced to nor derived from anything of lesser category" (Short, 2010: 535). Carrying the call to explanation to its utmost limits (or at least as far as I am able to bring them), I want to suggest that it is not just the laws of nature that call for explanation, but the very existence of Thirdness and Secondness as such. Put simply I will suggest a way of explaining how Secondness and Thirdness might have come to be, not as seconds or thirds, as Peirce suggests in his cosmology, but as Categories *per se*<sup>5</sup>.

While I agree with Short and others that the Categories cannot be *reduced* to one other, it does not follow that some cannot be *derived* from another. It

<sup>4</sup> I add this qualifying note as a nod to those who may claim that difference must precede unity, for since the aim at unity is a function of Thirdness on this account (which comes after Secondness or difference) then it should be clear that Peirce's account is perfectly compatible with that position.

<sup>5</sup> I should note that I believe the account of Peirce evolutionary cosmogony outlined here also addresses most if not all of the objections raised in Short (2010). I hope to provide a more detailed outline of this in a future work.





is clear that if the Categories are to stand as non-reducible *elements* in Peirce's sense of the term, then each must bring something to the table that the others, including any combination of the others, cannot. I accept this point. But if we take the term 'derive' in the spirit of Peirce's semio-illative account of inference, as a logical process of following-from that is inherently ampliative, ecstatic, and emergentist in character (Rose, 2011a), then it seems reasonable to suggest that the very Categories of Secondness and Thirdness could stand as emergent outcomes of Firstness. Here is a brief sketch of Peirce's basic cosmogonic scheme, but now modified and applied to the Metaphysical question of how the Categories could have come to be. I suggest that by extending Peirce's basic cosmogonic argument in the metaphysical sense outlined here we can see how the Categories of Secondness and Thirdness can be said to have come into being as emergent conditions that follow from but are not reducible to Firstness as their ground.

1. In the beginning was Firstness. Expressed in modal terms, this would be a state of absolute possibility, a state where there was nothing actual or potential, no limit or limiting power whatsoever, just a state of absolute, indeterminate possibility. As a state of radical indeterminacy, Firstness can neither be determinate nor determining, for this would be to presume some limit or limiting power. But there is no limit or limiting power of any sort, there is quite literally Nothing, or at least as close to Nothing as we may be able to conceive (i.e. no-thing, no activity or power of determination, no orientation—Nothing). As a state entirely devoid of limit or limiting power, Firstness must be maximally determinable, for if it were not then this would imply a power of exclusion, prohibition or limit of some sort, and such a state is the absence of such things. Because there is no limit of any sort, only a state of maximal determinability, Firstness stands as a state of absolute *permissibility*, a condition where quite literally anything is possible, including the impossible as such (at least as defined by the principle of non-contradiction).
2. From this state of absolute permissibility there emerges Secondness, not as something *determined* by Firstness, but as something that is *permitted* or made possible by Firstness as such. Secondness stands as limit, difference, otherness, the negation of Firstness that is not itself reducible to Firstness, but stands alongside of it as a new, irreducible element of being.



3. From Firstness and Secondness there again emerges Thirdness, not as something determined by Firstness or Secondness, but as something that is not prohibited by either. Thirdness stands as a mediating condition that serves to bring together or unify the otherwise disparate elements of Firstness and Secondness into a coherent, continuous unity or whole. Secondness and Firstness will be ingredient within Thirdness, but it will not be reducible to either, standing as a newly emergent, irreducible element of being alongside Firstness and Secondness.

Here we have a very brief sketch of the origins of the Categories of Secondness and Thirdness. Since existence and actuality are conditions of Secondness and Thirdness, then this account can be thought of as the derivation of something from nothing. Whether this is a clarification of Peirce's work or an amendment to it is a matter of discussion. Certainly the seeds of the idea are already present in Peirce's work and it is clear that he toyed with something like this as well. We see hints of it, for example, in Peirce's claim that "the tendency to growth can be supposed itself to have grown from an infinitesimal germ accidentally started" (Peirce, 1891: 289). We also see hints of it in Peirce's later claim that at least two of the three Universes "have a creator independent of them" (Peirce, 1908: 449), with Firstness as presented here standing as the ground or 'creator' of the other two. If this account seems reasonable at all (and I think it does), it is because it is expressive of the same kinds of emergent, ampliative, ecstatic elements found within Peirce's semio-illative account of logic and inference. Insofar as Secondness and Thirdness follow from Firstness, such following is not a relation of determination but of destination, for they are destined though not determined.

## §7. CONCLUSION

Peirce's cosmogony philosophy of emergent evolution stands as a radical and potentially rich alternative to other works in the emergentist tradition. Not only does he reject the mechanistic metaphysics that seems to underlie so many emergentist accounts, but his inclusion of chance (Firstness) and a principle of growth (Thirdness) as real ingredients in the world also goes a long way towards accounting for the general fact of emergence as such, as a predictable, explicable



feature of the general order of Nature. In effect what we have here is a plausible hypothesis for a *theory of emergence*, one that is sorely lacking within the emergentist literature. I believe it is time for scholars and others who are interested in rethinking our conception of Nature to begin looking more seriously at Peirce's work in order to finally give it the attention and respect it is due.

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